

C-51 Rule Study

Meeting Summary

November 22, 2002

1:30 PM to 4:00 PM

To: SueLynn Dignard, Project Manager, SFWMD

From: Alan Hall, Project Manager, TBE

Subject: External Technical Review Team Meeting, Review of Draft Technical Memorandum #1

Attendees: Alan Hall, TBE
SueLynn Dignard, SFWMD
Susan Ray, SFWMD
Ken Konyha, SFWMD
Mark Wilsnack, SFWMD
Tony Waterhouse, SFWMD
Clete Saunier, LGWCD
Patrick Martin, LWDD
Alan Wertepny, MRA
Ken Todd, PB County

This meeting was arranged in order to review the Draft Technical Memorandum #1 which was delivered to the District on November 1, 2002 as agreed.

SueLynn Dignard had distributed an 8-page list of comments previously for discussion at this meeting. In order to accommodate the schedules of the external participants it was agreed that we would address the Section B comments first. (Note: the 8-pages of comments were divided into two sections – A for internal reviewers, and B for external reviewers.)

Section B Comments:

Comment B-1: Section A, Task 3, SubTask 3.3, Page 5 of 7:

- How will the discharge for each sub-basin be determined for the 100-year, 72-hour storm event? *Answer – Initial model runs will allow unconstrained inflows from sub-basins with the hydraulic capacities of the connection facilities being the only limitation. After we review the hydraulic performance with the SFWMD we will then consider alternative modeling scenarios which may include limiting inflow rates to permitted maximums for the 10-year, 72-hour storm event.*

- Will the runoff hydrograph be generated to reflect present conditions and the hydraulic capacity of discharge structure for each sub-basin? *Answer – Yes, this is described above as our initial model run.*
- How will you account for undeveloped lands within the sub-basin? *Answer – Undeveloped lands will assume to have a zero percentage of impervious coverage with the soil-based curve number assigned. There was some discussion about using Palm Beach County Comprehensive Land Use Plan data but this would presume a future land use that may not come true.*
- Will the discharge be limited to any allowable rate? *Answer – Not for the initial model runs, and not before we have an open discussion with the SFWMD and the External Technical Review Team about the options.*
- If an existing, un-permitted system discharges in excess of allowable, will its discharge be artificially limited to allowable? *Answer – It could be, dependent upon further discussions with the SFWMD and the External Technical Review Team.*

Comment B-2: Section B, September 18 (1:30 PM) Meeting Summary, Page 1, Item 1:

- Permit Issued November 4, 2002, a copy will be provided to TBE November 22, 2002. *Answer – Copy of General Permit No. 50-00548-S for Wellington Pump Station No. 6 was received at this meeting. This permit authorizes the construction of a pumping station with two 62,000 GPM pumps but would allow only one to be operated at a time with the second as a back-up facility.*

Comment B-3: Section B, September 18 (1:30 PM) Meeting Summary, Page 1, Item 3:

- The control elevation for Basin A is 11.0'. *Answer – This will be included in the modeling of Sub-basin 13 for the storm event routing.*

Comment B-4: Section B, September 25 (1:00 PM) Meeting Summary, Page 2, Item 5:

- At the north end of CPB-20A there is a 36-inch diameter pipe extending to Okeechobee Blvd. Tampa Bay Engineering should obtain from Palm Beach County roadway plans and updates for Okeechobee Boulevard from Palm Beach County, to determine if Sub-Basin 16B can contribute to Sub-Basin 16A. *Answer – Alan Wertepny, Mock, Roos & Associates and Ken Todd, Palm Beach County, agreed to provide to TBE the construction plans for the relevant sections. TBE subsequently received the plans from Mr. Wertepny and Mr. Todd.*

Comment B-5: Section C, Page 2, Paragraph 2, Sentence 3:

- States that ... “Only under extreme rare circumstances has water ever flowed from the C-51 westerly through this structure. As a result any capacity of the S-5AE to provide flood protection must be ruled out in the subsequent basin modeling efforts”. During the existing 100-year event will water flow westerly through this structure as indicated in the current FEMA studies? It is likely that during the 100-year storm events with S-319 pumping station in operation there will be no westerly C-51 flow. Please confirm. *Answer – The S-5AE structure was designed and constructed for the sole purpose of water supply/irrigation releases from Water Conservation Area 1 and Lake*

Okeechobee into the western end of C-51 to serve the needs of the agricultural properties during dry season conditions. During a 100-year event the stages on the west side of this structure will always be higher than the eastern side, especially when S-319 is installed. As former Operations Director of SFWMD, TBE's Project Manager, Alan Hall is intimately familiar with the structure operations and capabilities of these facilities.

Comment B-6: Section C, Pages 7-8:

- Reference is made to NPBCID Structure which controls the CPB-20A Canal System. This was previously a NPBCID Control Structure; however, it is now owned, operated, and maintained by the Village of Royal Palm Beach. Therefore, the text should read a Royal Palm Beach control structure. ***Answer – This will be corrected in the text. This facility now serves what is identified as Sub-basins 16A and 16B.***

Comment B-7: Section D, Page 1:

- Reviewer provided an inventory of some of the Village of Wellington's surface water management permits. This will be provided to TBE on November 22, 2002. This Exhibit and database is currently being revised by the reviewer and should be available within sixty days. Please advise if you want the updated version. ***Answer - TBE requested a copy of the revised database. We received the information from Mock, Roos & Associates on December 13, 2002.***

Comment B-8: Section E, Pages 3-9:

- Will the C-51 Sub-Basin boundary for the 100-year storm event be modified as a result of the modeling studies and the LIDAR data, which may indicate sub-basin transfers?
Answer – It was generally agreed that the sub-basins identified in this Technical Memorandum #1 will be used for the 10-year, 72 hour storm event and the 100-year, 72-hour storm event for initial model runs. After we see the output from these initial runs we will discuss with the SFWMD and the External Technical Review Team the method of handling inter-basin transfers of runoff for the 100-year storm event. Either a set of consolidated sub-basins will be identified or the runoff hydrographs for routing purposes will be adjusted to account for actual physical conditions.
- Will the C-51 Sub-Basin boundary for the 100-year storm event be modified as a result of the modeling studies and the LIDAR data, which may indicate sub-basin transfers?
Answer – As discussed above, it is possible that the sub-basin boundaries may be adjusted for the more severe flooding conditions.

Comment B-9: Section E, Page 6, Sub-basin 15B:

- Please clarify as to what storm events the permitted operational protocols will allow sub-basin 15-B to contribute to C-51. Addressing this issue may be similar to assumptions made by SFWMD in the 1984 study for no permitted discharge from certain sub-basins (New Sub-Basin Nos. 13, 16B, 20A, 38). Additionally, will these sub-basins with zero discharge for the 10-year event be provided with a set discharge rate or one determined by modeling the existing condition. Note that these projects were designed with at least a minimum discharge rate for water quality purposes (1/2 inch per day). ***Answer – It is our intent to initially model the watershed with Sub-basin 15B contributing flow to C-51***

via the Royal Palm Beach system for the 10-year, 72-hour design storm to see what the discharge rates and flood effects are both within the Village of Royal Palm beach and the C-51 systems. The final decision on inflows from Sub-basin 15B will be made by the SFWMD after review of these modeling efforts.

Comment B-10: Section E, Page 6, Sub-basin 16B:

- Within this basin is a 100-acre commercial tract with a surface water management system that discharges through a 60-inch diameter culvert under Okeechobee Blvd. to the commercial tract south of the roadway. *Answer – We have received the design plans for this tract and will incorporate this into the consideration of flows and hydrographs for Sub-basin 16A and 16B. The commercial tract also is able to contribute flow from the southern parcel northerly as well.*

Comment B-11: Section E, Page 7, Sub-basin 25B:

- Sub-Basin divide is west of Congress Avenue at a control structure installed by the Lake Worth Drainage District into the L-2 Canal. The structure is approximately 250-feet west of Congress Avenue and is immediately east of a ditch extending north. Refer to a more detailed aerial to locate the facilities, and to be able to modify the boundary. *Answer – The referenced structure was identified and the sub-basin boundaries modified accordingly on the final Sub-basin boundary map.*

Comment B-12: Section E, Page 8, Sub-basin 35:

- Cloud Lake has a discharge Pump Station with a capacity of 12,000 gallons per minute. *Answer – This information has now been incorporated into the study.*

Comment B-13: Section F, Soils Data:

- How is the information in the Generalized Soils Map planned to be used? There are more detailed soil maps available for each sub-basin available. *Answer – The Generalized Soils Map is for information, only we plan to utilize the detailed information shown on CD #5, NRCS Palm Beach County Detailed Soil Survey Report, for determination of appropriate soils for development of the Runoff Curve Numbers by sub-basin.*

Comment B-14: C-51 Basin boundary revisions:

- What is the basis for the C-51 Basin boundary revisions? Will the whole team agree with them? *Answer – The basis for the boundary revisions are permits issued by the SFWMD Governing Board. These permits carry the weight of state law as determined in the courts by precedent-setting cases. The boundary revisions identified in this Technical Memorandum #1 have all been reviewed by the External Technical Review Team and, with adjustments as documented in the final report, are agreed to by all for modeling purposes.*

In addition to these previously-provided comments, those in attendance discussed additional items, as follows:

1. Sub-basins 11A, 11B and 11C – In discussions with Clete Saunier, District Administrator for the Loxahatchee Groves Water Control District, it was decided

to combine these into a single Sub-basin 11 with three water control outlets. The internal water conveyance network of LGWCD is such that water can move relatively freely between the structures based upon best hydraulic capabilities at the time. This is similar to the decision that was made for modeling Acme Basin A as a single Sub-basin 13.

2. Sub-basin 12 – It was determined that the size of this sub-basin needed to be reduced to just include the Palms West Hospital facilities.
3. Sub-basin 20A and 20B – It was agreed that a follow-up meeting with Patrick Martin at Lake Worth Drainage District headquarters would be needed to fine-tune the boundaries of these sub-basins based upon LWDD’s facilities and operating policies. (Note: A subsequent meeting was held on December 9, 2002 and this Technical Memorandum #1 now incorporates these changes)
4. Sub-basin 21 – It was decided in discussions with SFWMD staff that this will be sub-divided into 2 sub-basins. Sub-basin 21A will represent the Strazulla Wetlands property and Sub-basin 21B will represent the remaining lands served by the LWDD facilities along State Road 7.

This concluded the review of comments by the external parties. At this point, the External Technical Review Team members left and the internal comments were reviewed with the District staff members. Our responses on the internal comments are included below:

Part A: SFWMD Internal Review Team Comments

General Comments

General Comment A1: Section Titles:

- Use bold text for Section Titles and sub-sections. *Answer – Formatting changed.*

General Comment A2: Page Numbers:

- Format the page numbers to show Section Number as well. For example, page 1 of Section B should be numbered “B-1” or similar. *Answer – Formatting changed.*

General Comment A3: Attachments:

- There are a number of attachments referred to but not included in the document. Please ensure all reference materials are included. *Answer – Attachments referred to are now incorporated into the documents.*
- If the reference is to a CD or other media type, please ensure the level of reference detail provided is sufficient to locate that reference – the CD, or other media type, and the specific file. *Answer – References changed to enable ease of location.*

General Comment A4: Format of CD:

- Format the CD’s such that electronic format is easier to follow. For example, use directories and if necessary, subdirectories, on the CD’s. Each Section of the document could be contained in a directory / subdirectory on the CD. This would

make it much easier to follow than having all files related to the project at the CD root directory. *Answer – Formatting changed.*

Specific Comments

Comment A-1: Section A, Sub-Task 1.5, Paragraph 1, Sentence 4:

- Remove “(since receipt of LIDAR data from the District in machine-readable format was delayed, the draft DTM will be submitted by December 1, 2002.)” Submittal of the DTM at a later date (December 1, 2002), was agreed to by the District and TBE prior to submittal of the deliverable. There is no reason, nor is it appropriate, to include such a statement in the deliverable. *Answer – Text changed.*

Comment A-2: Section A, Sub-Task 2.3, Paragraph 1, Sentence 2:

- Replace “District Review Team” with Technical Review Team”. *Answer – Title of team changed.*

Comment A-3: Section B, Paragraph 3, Sentence 4, Page 1:

- Remove “(Note: the original estimate for development of the DTM assumed transfer of the LIDAR data no later than September 1, 2002. Unfortunately, the District had staffing limitations that prevented the data’s availability until early October.)” It is not appropriate to make this statement in the deliverable. It was agreed to between the District and TBE prior to submittal of the deliverable that December 1, 2002 is a suitable date for the DTM and this will not impact the schedule. If you like, in the previous sentence you may revise it to state “As agreed to between the District and TBE, it is currently projected that the DTM will be available for review by December 1, 2002.” *Answer – Text changed.*

Comment A-4: Section B, September 4 Meeting Summary:

- The Project Schedule and Agenda are referred to as attachments. Since these are referred to here, they should be included with the Meeting Summary. *Answer – Schedule and agenda included within the summary.*

Comment A-5: Section B, September 17 (1:15 PM) Meeting Summary, Page 2, Last Sentence:

- “basin” is spelled incorrectly in the phrase “local sub-basin insights”. *Answer – Text changed.*

Comment A-6: Section B, September 17 (1:15 PM) Meeting Summary, Page 3, Item #5:

- “lower” is spelled incorrectly in the phrase “for lower operating levels”. *Answer – Text changed.*

Comment A-7: Section B, September 18 (10:00 AM) Meeting Summary, Page 1, Paragraph 1, Sentence 2 AND Page 2, Last Sentence of Second last Paragraph:

- “Wertepny” is spelled incorrectly in the phrase “with Alan Wertepny of MRA”. *Answer – Text changed.*

Comment A-8: Section B, September 18 (12:00 PM) Meeting Summary, Page 1, Paragraph 1, Sentence 1:

- Remove the word “the” in front of “Clete Saunier, as Administrator...” *Answer – Text changed.*

Comment A-9: Section B, September 19 (10:00 AM) Meeting Summary, Page 2, Item #5, Sentence 1:

- “County” is misspelled. *Answer – Text changed.*

Comment A-10: Section B, September 25 (1:00 PM) Meeting Summary, Page 1, Paragraph 1, Sentence 2:

- Remove second period “.” From end of sentence. *Answer – Text changed.*

Comment A-11: Section B, September 25 (1:00 PM) Meeting Summary, Page 1, Item 4, Sentence 2:

- Replace “state dthat” with “stated that”. *Answer – Text changed.*

Comment A-12: Section B, October 8 (10:00 AM) Meeting Summary, Page 1, Last Sentence:

- Please include the attachment that is referred to in the last sentence and identified at the bottom of the page. *Answer – Attachments have been included.*

Comment A-13: Section B, October 16 (1:00 PM) Meeting Summary, Page 1, Paragraph 3, Sentence 1:

- Reference is made to an EXCEL spreadsheet, but it is not attached as part of this Meeting Summary. If this is the same spreadsheet as at the end of Section C, please provide the necessary reference details. If this is referring to another spreadsheet, please include the appropriate reference location, or include as an attachment to the Summary. *Answer – Reference detail provided to ease in location of spreadsheet.*

Comment A-14: Section C, Page 11, Sentence 1:

- Wording “... there is not very much vacant land left as a percentage...” is awkward. Suggestion – “...there is very little vacant land left as a percentage...”. *Answer – Text changed.*

Comment A-15: Section D, Page 1, Paragraph 4, Sentence 1:

- The word “still” has been spelled “till”. *Answer – Text changed.*

Comment A-16: Section E, Map of Recommended Sub-Basin Boundaries:

- The sub-basin map being recommended as part of this study has the same Title, Date and Disclaimer / Description as the map representing the original (1984) study sub-basins. Revise the map to have an appropriate Title, Date and Disclaimer documentation representing this current study. It is important to note that the sub-basins being recommended in this study are preliminary until the study is complete and the rule is adopted. The CD containing this jpeg file has three files: 1)

C51subbasins – the 1984 map; 2) c51subbsn – the revised/recommended map; and 3) New c51subbsns – also the revised/recommended map. If there is a difference between 2) and 3) please identify and describe. *Answer – Map has been revised and replaced in the final report.*

Comment A-17: Section E, Page 6, Sub-basin 16A, Last Sentence:

- Incorrect use of “their” – replace with “there”. *Answer – Text changed.*

Comment A-18: Section E, Page 9, Sub-basin 38, Sentence 3:

- Use capitol “R” for “Riverwalk”. *Answer – Text changed.*

Comment A-19: Comment 19: Section H, Page 1, Paragraph 1, Sentence 1:

- You indicate that H&H data from the District’s DBHYDRO database is enclosed in the back of the report. Please provide additional detail on where this data is located “in the back of this report”. That is, provide enough detail so the information you reference can be more easily identified – Note the CD, and if appropriate the directory and filenames. I believe the information to which you are referring is actually found on two CD’s, with different names on each CD. Please ensure that the correct file is referenced. *Answer – Reference detail provided to ease in location of data.*

Comment A-20: Section H, Paragraph 1:

- Additional descriptive detail on the data that you are referencing in this section would be beneficial. Please identify the kind of data collected, including the reporting period and data type (mean hourly, daily, monthly...). I would like a table/report identifying the source of the data, the station location, station identifier, period of record, etc... *Answer – Detail provided to ease in identification of data sets.*

Comment A-21: Section H, Page 1, Paragraph 2, Sentence 3:

- Reference to the data sets used by FEMA contractors as being attached to the back of this report. Same as comment #17, please provide additional detail identifying where the data is located “in the back of this report”. The use of Appendices would help. Have each CD (or set of CD’s such as for the software or the FEAM FIRM maps) as an Appendix. Within the Appendix, where necessary, the appropriate directory and filename could be referenced. *Answer – Reference detail provided to ease in location of data.*

Comment A-22: Section H, Page 1, Paragraph 2:

- For x-sectional information, please provide detail and documentation on the data source along the entire length of the canal. Identify where canal improvements have been made and the source of the data for each location. *Answer – Reference detail provided to ease in identification of data.*

Comment A-23: Section K, Electronic Data Set 4:

- The land use provided as a shape file appears to be 1988 although the columns in the attribute table indicate 1995 data. When overlaid on the coverage that SFWMD has

in-house for 1988 and 1995 land use, the file you provide matches with the 1988 data. ***Answer – Will obtain 1995 land use update from SFWMD for incorporation into the final study. In addition, the 1995 land use data sets include many more layers of detail than the 1988 sets.***

- Where did you obtain this land use? How do you intend to use the land use? Obtain the most recent land use data available and ensure this is used in the study. ***Answer – Will obtain 1995 land use update from SFWMD for incorporation into the final study. This data will be utilized for computing appropriate hydrologic factors such as percentage of impervious coverage, percentage of water bodies, etc.***

Comment A-24: Section K, Data Set 4:

- The soils CD does not have the soil relate files included. This is necessary to identify the soil types. Where did you obtain the soils data? How do you intend to use the data? Please ensure you have complete information. ***Answer – The detailed soils information is included on CD #5, the NRCS Palm Beach County Soil Survey.***

Comment A-25: C-51 Basin Boundary:

- Explain in detail the differences between the drainage basin boundary for the entire C-51 basin (as provided in the shape file as well as the 1984 study) and the recommended basin boundary for the C-51 basin. Provide justification as to why the boundary needs to be revised. The north portion of the basin is of particular concern since this is where the most discrepancy appears. Any boundaries that change should be thoroughly documented. ***Answer – Included a discussion of overall basin boundary changes in a new Summary section.***

Comment A-26: C-51 Basin Boundary Revisions:

- Although Baywinds and Andros Isle have been designed with inflows to the WPB Water Catchment Area, they also include connections allowing for runoff to be directed eastward when it is determined that the Catchment Area can not except runoff from those sites. Baywinds and Andros Isle should be included in the C-51 basin. ***Answer – After discussions with the External Technical Review Team members it was agreed that, for modeling purposes, the Baywinds project will not be included in the C-51 basin but the Andros Isle project will.***
- The September 18 meeting with MRA also makes reference to the Baywinds system discharge to the WPB WCA. ***Answer – Correct, for basin modeling purposes it will be assumed that Baywinds does not contribute to C-51.***
- Page 4 of 4 of the Permit Data Table under Tab D indicates the Lennar Homes system, Permit No. 50-03926 discharges to the WCA. It should be noted that there is a runoff connection to the east. ***Answer – This is the Baywinds project, the secondary eastern capability does not warrant inclusion in the C-51 basin.***

- Section E also makes reference to systems in Subbasin 34 that no longer connect to the C-51. *Answer – Details of localized facilities will be considered in the construction of the hydraulic model.*
- The section on recommended subbasin boundaries, page 9 under Tab E, also references a portion of the Andros Isle system that does not contribute to the C-51 and it excludes the Lennar (Baywinds) system. *Answer – These areas were discussed with the External Technical Review Team members and adjustments made as agreed.*

Comment A-27: District facilities / Meeting Summaries:

- There are many references to operation of District facilities such as the September 17 summary of the meeting with SFRN. Has TBE met with the District operations staff? There is no meeting summary in this submittal identifying such a meeting. *Answer – As the former Operations Director of SFWMD, TBE's Project Manager is more familiar with system operations than most operational staff. In fact, he trained the current Operations Director. Meetings with operations personnel at both the SFWMD and the Jacksonville Corps will be scheduled early next year at a schedule convenient for the SFWMD Project manager and the respective operations personnel. The Jacksonville Corps staff have just moved into new facilities and need a organizational period to set up their offices.*
- Operating rules and procedures (and assumptions) need to be documented in detail. This should be included in the next deliverable, as this is an important aspect of the model development. *Answer – Will include all operational assumptions in the next deliverable.*

Comment A-28: Section D, Permit Data Table, Page 2 of 4:

- There is a reference to an agreement between ITID and Stonewal on page 2 of 4 of the Permit Data Table under Tab D. That agreement does provide for inflow from the Stonewal system to ITID. How does the contractor plan to account for that? The Stonewal property does not show up on the subbasin map. *Answer – The Stonewal property is now included within the northern portion of Sub-basin 15B. The pump station that serves Stonewal is operated by ITID and is meant as a post-storm release into ITID after that basin has drained (personal communication from Jay Foy, former ITID engineer).*

Comment A-29: Section D, Permit Data Table, Page 3 of 4:

- On page 3 of 4 of the Permit Data Table under Tab D, why isn't the permitted discharge for Wellington's Edge handled the same way as the Wellington Green Mall on page 4. *Answer – Text changed to provide consistency.*

Comment A-30: Section I – Related Studies:

- Related studies section is lacking. There have been numerous studies in the area, some still ongoing that have not been mentioned. *Answer – The studies mentioned are those that have a direct bearing on this modeling effort by either providing data sets or benchmarks for*

modeling output. There are literally a dozen other studies that can be identified, some of which go as far back as the 1950s and some that are currently ongoing, such as the North Palm Beach County CERP initiatives, which can be listed. If the District really wants these included TBE will do so, but we do not see the benefit for this modeling effort. The CERP documents, the Detailed Design Memoranda for C-51, and the Northern Palm Beach County Water Management Plan contain extensive lists of relevant studies that could be included.

Comment A-31: (September 18 Meeting (10:00 AM):

- Concern over the Renaissance Project – Reviewer thought it included City Place and the Convention Center but if so some of the language contradicts or is confusing. *Answer – The inclusion of City Place and the Convention Center in the Renaissance Project is described in detail on CD #8, the City of West Palm Beach Stormwater Master Plan.*
- Where is Hampton Lakes – any subdivision mentioned should be identified on a map. *Answer – This was meant to be the Hamilton Bay project identified at the August 30, 2002 meeting by Mr. Wertepny.*

Comment A-32: Additional Meeting:

- Steve Lin put together the first Basin Rule. Would be beneficial to meet with Steve and provide a summary document similar to the others in Section B. *Answer – Will meet with Steve prior to completing the next deliverable. Actually, TBE's Project manager, Alan Hall, put together the first Basin Rule. Steve Lin was part of a modeling team under Mr. Hall's direction in 1984 who performed the initial modeling work. Jim Lane performed the hydrologic aspects of delineating sub-basins and computing runoff hydrographs and Steve Lin conducted the hydraulic profile work using HEC-2.*

This concluded the review of the Draft Technical Memorandum #1 by both the staff and the External Technical Review Team.

TBE will subsequently incorporate all comments into the Final Technical Memorandum #1.